

REMARKS

Claims 1 and 3-12 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Byers et al (US 2002/0107621) in view of Serizawa et al (US 5,347,458). The Examiner asserts that Byers teaches receiving signals of vehicle speed and steering wheel rotation-angle, but not a third signal from the group of vehicle speed, vehicle yaw rate, steering wheel rotation-angle, and vehicle lateral acceleration, which are recited in Applicant's Claims 1 and 7, as amended.

The Examiner asserts that Serizawa teaches the use of vehicle yaw rate to determine feedback to the vehicle's driver, in terms of the steering wheel resist torque as taught by Applicants and as set forth in Applicants' Claims 1 and 7. Applicants respectfully traverse this rejection and request that each of Claims 1 and 3-12 be reconsidered in view of these remarks and passed to issue over the Examiner's rejection.

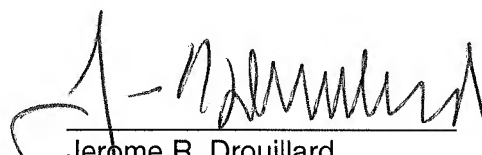
The Examiner is correct insofar as Byers does not teach the use of vehicle yaw rate as a variable for determining a desired steering wheel resistance torque. However, Serizawa does not teach this either. As a result, Applicants respectfully submit that neither Byers, nor Serizawa, whether taken singly, or in combination with each other, either teach or suggest Applicants' claimed invention as set forth in Claims 1 and 3-12.

The Examiner's reading of Serizawa is incorrect because although Serizawa uses actual yaw rate in determining the response of his steering mechanism, the yaw rate is used for operating a first powered actuator which serves to steer the wheels of the vehicle; Serizawa does not use yaw rate for operating a second powered actuator which applies a reaction force, T , to the vehicle's steering wheel. This seems quite clear when one considers Serizawa at Col. 9, lines 28-35, wherein it is stated:

“FIG. 7 summarizes the basic concept of the present invention. The transfer function of the steering actuator and transfer function of the vehicle body are obtained as $g(s)$ and $h(s)$, and a desired overall vehicle response is defined as $f(s)$. The actual yaw rate response of the vehicle to a steering input may be made substantially equal to the desired overall vehicle response $f(s)$ by compensating the uncompensated overall response by a compensatory transfer function $1/g(s)h(s)$.

The essence of Serizawa's device is succinctly set forth in Serizawa's Claim 3, wherein his reaction force, T , is stated as being represented by a mathematical function including an acceleration term proportional to an angular acceleration of the steering wheel, a velocity term which is proportional to an angular velocity of the steering wheel, a proportional term which is proportional to an angular displacement of the steering wheel, and a constant term which is constant in value but changes depending on the angular displacement of the steering wheel from a neutral position. Thus, Serizawa neither teaches nor suggests anything regarding the use of vehicle yaw to determine feedback resistive torque to be fed back into the steering wheel for the benefit of the vehicle's driver. As a result, as stated above, neither Byers nor Serizawa, whether taken singly, or in combination with each other, either teach or suggest Applicants' claimed invention and independent Claims 1 and 7, as well as Claims 3-6 and 8-12, which depend respectively therefrom, are allowable over the Examiner's rejection and should be passed to issue. Such action is earnestly solicited.

Respectfully submitted,


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